

ZOOLOGY.—*Contracaecum quincuspis*, a new species of nematode from the American waterturkey.¹ JOHN T. LUCKER, U. S. Bureau of Animal Industry. (Communicated by E. W. PRICE.)

A female *Contracaecum* with lips and interlabia of remarkably complex structure was observed among some nematodes from the waterturkey (*Anhinga anhinga*) deposited in the U. S. National Museum Helminthological Collection. The only known species in which these structures vary conspicuously from the pattern usual in the genus is *C. tricuspis*² (Gedoelst, 1916) Baylis, 1920; but it was immediately apparent that the lips and interlabia of the specimen from the waterturkey differed from those described and figured for that species by Gedoelst (1916). Some specimens labeled "*Contracaecum tricuspis*" from *Anhinga anhinga* were available for comparison; but the lips and interlabia of these specimens and of the one originally examined by the writer were identical morphologically.

Other less striking discrepancies were also noted between the American specimens and *C. tricuspis*, which was originally described as *Kathleena tricuspis*, from a "Héron" from Belgian Congo. The species has subsequently been recorded by Baylis and Daubney (1922) from *Anhinga melanogaster* from India and by Baylis (1933) from the same host from Java.

It seems odd that two species of *Contracaecum* having elaborate lips and interlabia as their principal feature of difference from the pattern typified by such species as *C. microcephalum* and *C. punctatum* should occur in closely related hosts, even though the latter are from regions widely separated geographically. Nevertheless, the American specimens must be regarded as distinct from *C. tricuspis* on the basis of the present characterization of that species. Certainly there is no existing objective evidence, and no reason to assume or believe, that Gedoelst overlooked obvious and readily observed morphological features of the lips and interlabia of his species. From the nature of Baylis and Daubney's (1922) paper, which included descriptions of new species and redescriptions of previously known species of Anisakinae, it seems likely that these authors would have called attention to important discrepancies between Gedoelst's description and the Indian specimens identified by them, had any existed. Hence, the specimens from the American waterturkey are here described as a new species.

¹ Received September 24, 1940.

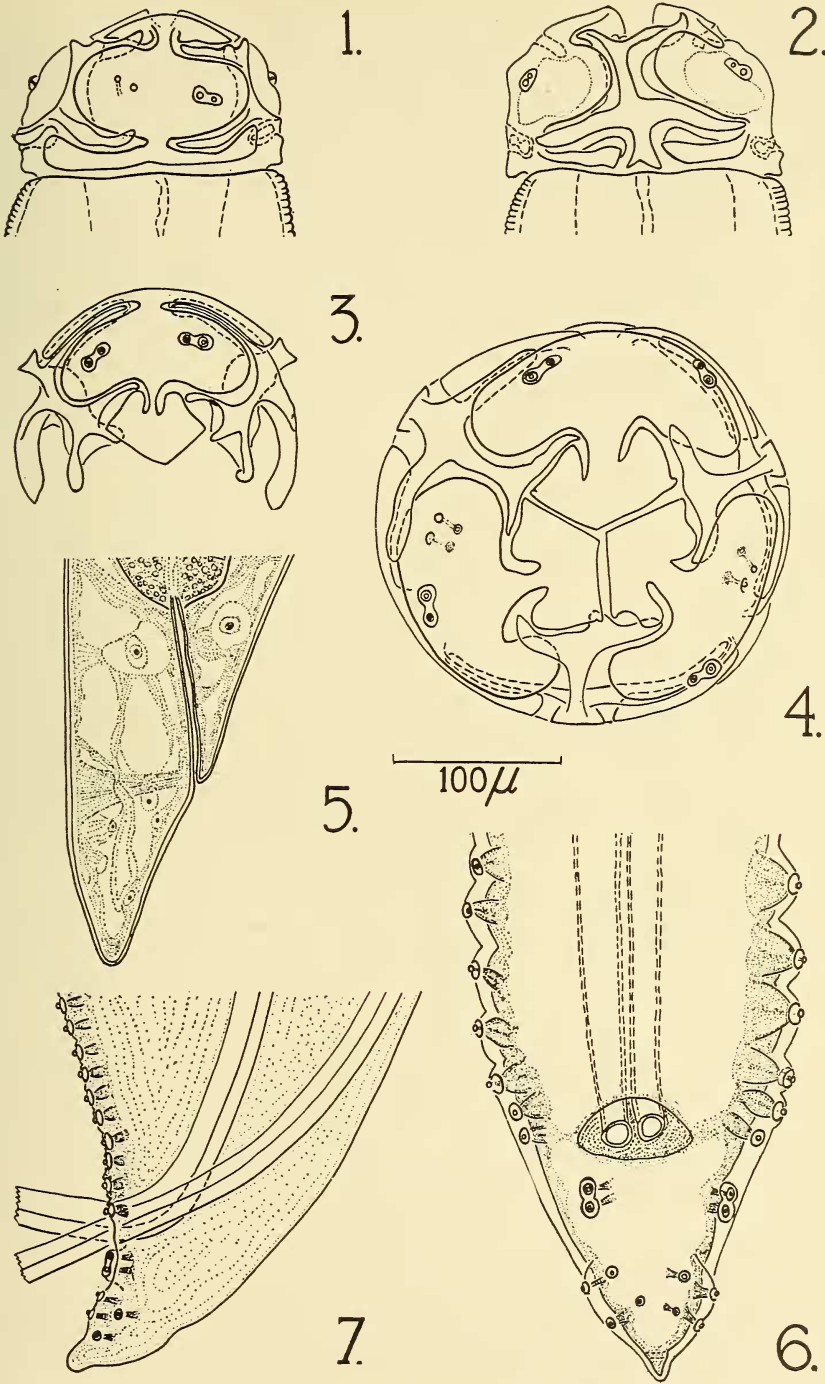
² Baylis (1920) emended the spelling of the specific name to "*tricuspis*," but as the reason for this is not clear, the original spelling is used in this paper.

Contracecum quincuspis n. sp.

Figs. 1-7

Description.—Lacking a distinct collar between anterior limit of cervical region and head, but with definite encircling groove marking junction of these regions (Fig. 1); posterior superficial margins of lips and interlabia discrete from anterior limit of cervical region. Cuticle of cervical region immediately behind lips not presenting "shirred" appearance. Lips and interlabia of complicated structure as follows: Each lip, viewed from without, with lateral margins deeply incised a short distance anterior to base, the notches or furrows extending nearly to median line of lip (Fig. 1). Outline of basal portion of lip, posterior to furrows, resembling a pair of wings connected to main body of lip by median construction or neck produced by incisions. Main body of lip, bearing papillae of external circle, appearing more or less elliptical in outline; posterior and posterolateral margins formed by basal furrows; lateral extremities convexly rounded, anterolateral margins converging toward median line, but not meeting. Internal and anterolateral to anterior curvatures of main body of lip, winglike processes, more or less acutely pointed at their lateral extremities, visible in this view (Fig. 1). *En face* view (Figs. 3, 4) shows that these processes represent lateral extremities of internal, more or less heart-shaped apex of lip; an anterior pair of incisions, passing from lateral extremities of lip toward median line and somewhat posteriorly, at first, then curving internally toward mouth axis and terminating some distance from tip of lip, separate heart-shaped apex from main body of lip, with only a narrow neck connecting the two. Apical process considerably narrower than main body of lip, its straight anterolateral margins meeting at tip to form obtuse angle; its posterior portion, bounded by anterior pair of furrows, in form of an auricle-like lobe on each side of connecting neck. Base of interlabium, viewed from without, comparatively narrow, discreet from base of neighboring lips (Fig. 2). Interlabium with a pair of slender, laterally directed processes originating just above base, each cusp fitting into complementary basal incision of neighboring lip. Superficial margins of interlabium anterior to basal pair of cusps, narrow, elongate, stemlike, passing between lateral margins of main body of neighboring lips. Stem broadening internally, with internal portion lying below lateral extremities of neighboring lips, and branching distally to form three cusps, an anterolaterally directed pair and a single short internally directed terminal cusp. Distal lateral cusps shorter than basal pair, fitting into complementary anterior incisions between main body and apex of neighboring lips. Terminal median process rounded at tip, usually not detectable from without or in *en face* view, but readily seen if head is dissected (Fig. 3). Cuticular expansions passing from terminal cusp to distal lateral pair and from latter internally along stem. Muscular esophagus long and very slender; ventriculus small, more or less rounded, or slightly elongate,

Figs. 1-7.—*Contracecum quincuspis* n. sp.: 1, Subventral view of head (female) tilted slightly upward; 2, ventral view of head (female) showing interlabium and its relationships with adjacent subventral lips; 3, *en face* view of dorsal lip and subdorsal interlabia from a dissection of head (female); 4, *en face* view of head (female), slightly oblique aspect; 5, lateral view of posterior extremity of female; 6, ventral view of posterior extremity of male tilted slightly toward the right, showing postanal caudal papillae and a few papillae of the preanal series (the protruding portions of the spicules had been cut off); 7, lateral view of posterior extremity of male, showing postanal papillae and a few papillae of the preanal series on the left side. (Figs. 5 and 7 are drawn to one-half the indicated scale.)



Figs. 1-7.—(See opposite page for explanation.)

depending on state of contraction; appendix about one-sixth to one-fourth as long as esophagus; intestinal cecum long, extending almost to region of nerve ring, voluminous at origin, tapering to rounded anterior tip. Deirids slightly posterior to region of nerve ring. The principal size relationships of three male and three female specimens are shown in table 1.

TABLE 1.—PRINCIPLE SIZE RELATIONSHIPS OF *CONTRACAECUM QUINCUSPIS* n. sp.

(All measurements in millimeters)

Measurement	Female			Male		
	Speci- men 1	Speci- men 2	Speci- men 3	Speci- men 1	Speci- men 2	Speci- men 3
Body:						
Length.....	23.0	23.0	15.0	12.1	12.5	10.0
Maximum width.....	0.87	0.97	0.48	0.50	0.43	0.50
Distance from anterior end to nerve ring.....	—	—	0.29	0.38	—	0.28
Muscular esophagus:						
Length.....	5.34	6.43	4.27	4.06	3.82	3.98
Average width.....	0.16	0.15	—	0.08	0.08	0.08
Esophageal ventriculus:						
Length.....	0.18	0.19	0.15	0.10	—	0.13
Width.....	0.20	0.25	0.18	0.15	—	0.13
Esophageal appendix:						
Length.....	0.86	1.18	1.05	0.95	1.27	0.64
Ratio of length to length of esophagus.....	1:6.4	1:5.5	1:4.2	1:4.4	1:3.1	1:6.4
Intestinal cecum:						
Length.....	5.10	6.07	3.97	3.34	3.47	2.97
Ratio of length to length of esophagus.....	1:1.1	1:1.1	1:1.1	1:1.2	1:1.1	1:1.4
Length of tail.....	0.28	0.33	0.26	0.38	—	0.28
Vulva:						
Distance from anterior extremity.....	8.15	10.27	7.43	—	—	—
Ratio of distance to body length.....	1:2.8	1:2.2	1:2	—	—	—
Length of spicules.....	—	—	—	2.83	2.03	2.24

Male.—Maximum length about 14 mm. Tail conical, curving ventrally, terminating in a small, more or less bluntly pointed ventral process. About 40 pairs of sublateral preanal caudal papillae, consisting of a single more or less linear series in each sublateral field, the posteriormost papilla of each series adanal in position; six pairs of postanal caudal papillae consisting, of a subterminal group of two lateral and two subventral pairs and two prominent subventral double papillae in region between terminal group and posterior lip of cloaca (Figs. 6, 7). Spicules approximately equal, about 3.7 to 4.25 mm. long in apparently fully grown specimens; minimum observed length in smaller specimens slightly more than 2.0 mm.

Female.—Maximum length about 23 mm. Tail conical, tapering gradually to rounded tip, lacking cuticular or hypodermal processes (Fig. 5). Vulva slightly prominent, distance from anterior end of body about 35 to 49 percent of body length. The available specimens did not contain fully developed eggs.

Host.—*Anhinga anhinga*.

Distribution.—Florida, Arkansas, District of Columbia (National Zoological Park).

Specimens.—U. S. Nat. Mus. Helm. Coll. no. 44559 (holotype; male), 44560 (allotype), 30591 (paratypes), 30592 (paratypes).

Remarks.—*Contracaecum quincuspis* differs from *C. tricuspis*, as described and figured by Gedoelst (1916), in the following respects: The lateral margins of the lips are deeply incised near the base and also anteriorly between the main body of the lip and the internal apical process; in *C. tricuspis* the lips are notched anteriorly between the apex and the remainder of the lip, only. In *C. quincuspis* the superficial basal margins of the lips and interlabia are discrete; the basal margins of the lips and interlabia are figured as continuous in *C. tricuspis*. In *C. quincuspis*, each interlabium gives rise to five cusps or branches, a prominent long slender lateral pair, originating near the base, a shorter anterolateral pair, and a terminal internal one; the interlabium of *C. tricuspis* bears only the three distal cusps. In *C. quincuspis* two double subventral caudal papillae occur a short distance behind the cloaca of the male; the corresponding papillae are not described as double in *C. tricuspis*. In both species the preanal series of caudal papillae terminate posteriorly laterally to the cloaca so that one or two pairs of these papillae are actually adanal in position. In *C. tricuspis*, however, a subventral papilla, median to the preanals and not aligned with them, is present close to each side of the cloacal opening; such an adanal pair is lacking in *C. quincuspis*. In some specimens of *C. quincuspis* the preanal series were observed to curve toward the median line as they neared the cloaca, the most posterior pair of papillae being more or less subventral in position, although clearly part of the preanal series. In *C. quincuspis* about 40 pairs of papillae comprise the preanal series; in *C. tricuspis* about 56 pairs are said to be present. In cases of convergence in all other important characteristics, these differences in the arrangement of the adanal and postanal papillae and in the number of preanal papillae would be regarded as normal intraspecific variations or as merely representing differing interpretations. But, in this instance they deserve emphasis because they are correlated with the presence of lips and interlabia which, so far as can be judged, are of characteristically divergent structure. Finally, in *C. quincuspis*, the esophageal appendix is about one-sixth to one-third as long as the esophagus; Gedoelst's measurements indicate that in *C. tricuspis* the appendix is about one-half as long as the esophagus.

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